

**Remarks**

Claim 1 has been amended herein to more particularly point out and distinctly claim the present invention. Claims 9-11 have been added. Thus, claims 1-11 are currently pending in the instant application.

**§ 101 Rejection**

Claim 1 was rejected under 35 U.S.C. § 101 because it was asserted that the claimed invention is directed to non-statutory subject matter. More specifically, it is asserted that because the claim is directed to an isolated culture, it is unclear that the culture has been made by the hand of man. It is further asserted that the culture is not isolated from nature. Applicants respectfully disagree.

Claim 1 is directed to an isolated culture of *Muscodor vitigenus* and variants thereof. In the specification, "isolated" is defined as a "culture fluid, plate, paper, etc. that contains a single type of organism." Thus, it is clear that claim 1 is directed to an "isolated culture of *Muscodor vitigenus*" that is a culture fluid, plat, paper, etc. that contains a single type of organism. Thus, claim 1 is directed to statutory subject matter. Reconsideration and withdrawal of the rejection is respectfully requested.

**§ 112, ¶ 1 Rejections**

**§ 112, ¶ 1 Rejection Regarding Deposit Requirement**

Claims 1-8 were rejected under 35 U.S.C. § 112, first paragraph because it was asserted that the claims contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains to make or use the invention. More specifically, it is asserted that the microorganism *Muscodor vitigenus* is essential to the invention recited in the claims and thus must be obtainable by a repeatable method set forth in the specification or otherwise be readily available to the public.

It is respectfully submitted that *Muscodor vitigenus* isolate 2116 has now been appropriately deposited in a currently approved depository. More specifically, the isolate was deposited at the Centraalbureau voor Schimmelcultures in accordance with the terms of the Budapest Treaty on July 31, 2006 and assigned accession no. CBS 120164.

Thus, it is respectfully submitted that the subject matter of claims 1-8 is described in the specification in such a way as to enable one skilled in the art to make and/or use the invention. Reconsideration and withdrawal of the rejections is respectfully requested.

**§ 112, ¶ 1 Rejection Regarding Written Description Requirement**

Claims 1-4 were rejected under 35 U.S.C. § 112, first paragraph because it was asserted that the claims fail to comply with the written description requirement. More specifically, it was asserted that the claims contain subject matter which is not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors had possession of the invention at the time the application was filed. That is, it was asserted that although the specification teaches variants, it does not describe mutants of *Muscodor vitigenus*. Applicants respectfully disagree.

Claim 1, as amended, is directed to an isolated culture of *Muscodor vitigenus* and variants thereof. As the Examiner has already noted, the specification teaches an isolated culture of *Muscodor vitigenus* and variants thereof. Thus, reconsideration and withdrawal of the rejection of claims 1-4 is respectfully requested.

§ 112, ¶ 2 Rejection Regarding Indefiniteness

Claims 1-8 were rejected under 35 U.S.C. § 112, second paragraph because it was asserted that the claims are indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. More specifically, it was asserted that the term "isolated" is indefinite and vague as to whether it is isolated from nature or not. Further, it was asserted that the phrase "mutants thereof" is indefinite and vague since it is unclear whether the mutants have all of the identifying characteristics of the culture *Muscodor vitigenus* or not. Applicants respectfully disagree.

With respect to the term "isolated," it is respectfully submitted that the term is clearly defined in the specification as a "culture fluid, plate, paper, etc. that contains a single type of organism," as discussed above. Thus, it is clear that claim 1 is directed to an "isolated culture of *Muscodor vitigenus*" that is a culture fluid, plat, paper, etc. that contains a single type of organism. There is no question regarding whether it is isolated from nature or not. Thus, the term "isolated" is not indefinite.

With respect to the term "mutants thereof," it is noted that claim 1 has been amended to be directed to "variants thereof." Thus, the rejection relating to the phrase "mutants thereof" is moot.

As such, claims 1-8 particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Reconsideration and withdrawal of the rejections of claims 1-8 are respectfully requested.

**§ 103 Rejections**

Claims 1-4 were rejected under 35 U.S.C. § 103(a) because it was asserted that the claims are unpatentable over U.S. Patent 6,911,338 ("Strobel"). More specifically, it was asserted that it would have been obvious to one skilled in the art to select for mutant *Muscodor* species having the ability to produce metabolites as disclosed by Strobel in order to provide for them in a composition for repelling insects from plants. Applicants respectfully disagree.

Claim 1, as amended, is directed to an isolated culture of *Muscodor vitigenus* and variants thereof, wherein the culture is capable of producing a product comprising substantially naphthalene.

Strobel does not teach or suggest the invention of claim 1. Instead, Strobel discloses two specific strains of two specific species: *Muscodor albus* 620 and *Muscodor roseus* A3-5. See *Strobel*, col. 2, ll. 13-14. These specific strains produce a mixture of numerous volatile compounds with activity against fungi, bacteria, insects, and nematodes. For example, the GC/MS analysis of the volatile compounds produced by *M. albus* includes at least 28 compounds. Of those 28 compounds, the three compounds containing some portion of naphthalene made up less than 4 % of the total area of the spectrum. In contrast, claim 1 is directed to a culture "capable of producing a product comprising substantially naphthalene." Thus, Strobel does not teach or suggest the invention of claim 1.

It is further respectfully submitted that it would not have been obvious to one skilled in the art to select for a culture "capable of producing a product comprising substantially naphthalene." As noted in the specification of the present application, "[n]aphthalene as a product from biological sources is exceedingly rare." In fact, "the observation that naphthalene is produced by the endophytic fungus *M. vitigenus* is not only unique to this group of *Muscodor* species but to all endophytic fungi as well." See *Present Application*, ¶ 15. That is, no other endophytic

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fungi produces a product comprising substantially naphthalene. Thus, it would have been obvious to modify Strobel to arrive at the invention of claim 1. Reconsideration and withdrawal is respectfully requested.

Because claims 2-4 depend directly or indirectly from claim 1 and incorporate all of the limitations of claim 1, the above arguments obviate the basis for this ground of rejection. Thus, claims 2-4 are not obvious in view of Strobel. Reconsideration and withdrawal of the rejection is respectfully requested.

#### **Double Patenting Rejections**

Claims 1-4 were rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 4-5 of Strobel. Applicants respectfully disagree.

As discussed above, claim 1, as amended, is directed to an isolated culture of *Muscodorum vitigenus* and variants thereof, wherein the culture is capable of producing a product comprising substantially naphthalene.

As also discussed above, Strobel fails to teach or suggest the invention of claim 1. Instead, as stated in the Office Action, the patented subject matter of Strobel is drawn to a "Muscodorum culture and composition containing the same." In contrast, claim 1 is directed to a culture "capable of producing a product comprising substantially naphthalene." Thus, the invention of claim 1 is patentably distinct from the patented subject matter of Strobel. Reconsideration and withdrawal is respectfully requested.

Because claims 2-4 depend directly or indirectly from claim 1 and incorporate all of the limitations of claim 1, the above arguments obviate the basis for this ground of rejection. Thus, claims 2-4 are not unpatentable over claims 1 and 4-5 of Strobel. Reconsideration and withdrawal of the rejection is respectfully requested.

#### **New Claims 9-11 Are Patentable**

Claim 9 depends directly from claim 1 and incorporates all the limitations of claim 1. Thus, claim 9 is patentable over Strobel for the reasons stated above relating to claim 1.

Claim 10 is directed to an "isolated culture of *Muscodorum vitigenus* and variants thereof, wherein the culture is capable of producing naphthalene at a rate of from about 5 ng hr<sup>-1</sup> to about 15 ng hr<sup>-1</sup>. Claim 10 is patentable over Strobel, because Strobel fails to teach or suggest such a culture. Further, claim 11 depends directly from claim 10 and incorporates all the limitations of claim 10 and thus is also patentable over Strobel.

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Conclusion

In light of the above amendments and remarks, Applicant respectfully submits that claims 1-11 are in condition for allowance. Reconsideration and a Notice of Allowance for all pending claims is respectfully requested. Should there be any remaining issues that remain unresolved, the Examiner is encouraged to telephone the undersigned at (415) 781-1989.

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